

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/505,141

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): Granular secondary particles of a lithium-manganese composite oxide which are granular secondary particles made up of aggregated crystalline primary particles of a lithium-manganese composite oxide, characterized in that the granular secondary particles have many micrometer-size open voids therein, the open voids having an average diameter in the range of from 0.5 to 3 μm and the total volume of the open voids being in the range of from 3 to 20 vol.% on average based on the total volume of the granular secondary particles.

2. (original): The granular secondary particles of a lithium-manganese composite oxide of claim 1, characterized in that the granular secondary particles have a specific surface area of from 0.2 to 1.0 m^2/g and an average diameter of from 5 to 30 μm , and the crystalline primary particles constituting the granular secondary particles have an average diameter of from 0.5 to 4.0 μm .

3. (original): The granular secondary particles of a lithium-manganese composite oxide of claim 1, which are represented by the compositional formula $\text{Li}_X\text{M}_Y\text{Mn}_{3-X-Y}\text{O}_{4-Z}\text{F}_Z$

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/505,141

(wherein X, Y, and Z are such numbers that X = 1.0 to 1.2, Y = 0 to 0.3, and Z = 0 to 0.3; and M represents one or more elements selected from Al, Co, Ni, Cr, Fe, and Mg).

4. (original): The granular secondary particles of a lithium-manganese composite oxide of claim 1, characterized in that the content of one or more boric acid compounds contained as an impurity in the granular secondary particles of a lithium-manganese composite oxide is lower than 0.0005 in terms of molar ratio between the manganese and boron (B/Mn) contained in the lithium-manganese composite oxide.

5. (original): The granular secondary particles of a lithium-manganese composite oxide of claim 4, characterized in that the boric acid compounds contained as an impurity are lithium borate and/or lithium sodium borate.

6. (currently amended): A process for producing the granular secondary particles of a lithium-manganese composite oxide of claim 1, characterized by comprising spray-drying a slurry prepared by dispersing a fine powder of a manganese oxide having an average particle diameter of 1 μm or smaller and a fine powder of lithium carbonate having an average particle diameter of 1 μm or smaller or by dispersing a fine powder of a manganese oxide having an average particle diameter of 1 μm or smaller, a fine powder of lithium carbonate having an average particle diameter of 1 μm or smaller, and a compound containing one or more elements

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/505,141

selected from Al, Co, Ni, Cr, Fe, and Mg to thereby granulate the slurry and then calcining the granules at a temperature of from 700 to 900°C.

7. (canceled).

8. (previously presented): A process for producing the granular secondary particles of a lithium-manganese composite oxide of claim 1, characterized by comprising spray-drying a slurry prepared by dispersing a fine powder of a manganese oxide, a lithium source, and an agent for open-void formation or by dispersing a fine powder of a manganese oxide, a fine powder of lithium carbonate, a compound containing one or more elements selected from Al, Co, Ni, Cr, Fe, and Mg, and an agent for open-void formation to thereby granulate the slurry and then calcining the granules at a temperature of from 700 to 900°C.

9. (original): The process for producing granular secondary particles of a lithium-manganese composite oxide of claim 8, characterized in that the agent for open-void formation is a substance which has an average particle diameter of 1 μ m or smaller and disappears upon heating.

10. (previously presented): The process for producing granular secondary particles of a lithium-manganese composite oxide of claim 6, characterized in that a compound which is a

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/505,141

compound of an element other than manganese, lithium, fluorine, aluminum, cobalt, nickel, chromium, iron, and magnesium and is not an agent for open-void formation is added as an additive to the slurry.

11. (original): The process for producing granular secondary particles of a lithium-manganese composite oxide of claim 10, characterized in that the additive is a boron compound, and that the compound is added to the slurry in an amount in the range of from 0.0005 to 0.05 in terms of molar ratio between manganese and boron (B/Mn) and, after the calcining, the boron is removed by water washing to such a degree that the molar ratio (B/Mn) decreases to below 0.0005.

12. (previously presented): A non-aqueous electrolyte secondary battery characterized by employing the granular secondary particles of a lithium-manganese composite oxide of claim 1 as a positive active material.